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Bilingual Pupils & Secondary Science

Bilingual Pupils and Secondary Science

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Introduction

This guidance is for teachers of science, heads of science and EAL/EMA teachers in secondary schools who work with bilingual pupils in science lessons. It is intended to help teachers support pupils learning EAL in the classroom in order to raise pupil attainment in science.

In the National Strategy, the inclusion of pupils for whom English is an additional language (EAL) is considered a fundamental principle. The 'Framework for teaching science: Years 7, 8 and 9' states:

'It is all too easy to underestimate what pupils learning EAL can achieve in science, simply because they are new learners of the English language. The expectations should be that they progress in their scientific learning at the same rate as other pupils of their age.' (2002: 55)

As well as holding high expectations, our objectives as teachers must also be to recognise the importance of teaching language when teaching science, and to raise pupils' awareness of language and literacy in science. Since the acquisition of academic language can take considerably longer to develop than social language, it is important to recognise that the academic language used in science lessons is more advanced than social language and seek to address these differences in our teaching. The basic premise, therefore, underlying the ideas and material in this booklet, is that language is central to teaching science and the science classroom is considered to be one of the best environments within secondary school for promoting good language development. In this way, the ideas and approaches put forward here are relevant to **all** pupils engaged in science education.

Science as a social process

The following extract provides an interesting insight into learning about science:

"Science contributes to the school curriculum by stimulating and exciting pupils' curiosity and their interest in, and knowledge of, phenomena and events of the world around them. Throughout their work in science, pupils are helped to understand major scientific ideas, to appreciate how these develop and contribute to technological change, and to recognise the cultural significance of

science and its worldwide development. Science offers a range of activities which can engage all learners by linking direct practical experience with ideas, developing key skills and encouraging critical and creative thought, through developing and evaluating explanations.... Pupils engage in questioning and discussion about science-based issues which affect their lives, the society in which they live and the world as a whole and, through this, become more confident in expressing views and evaluating decisions about such matters.”

(The Review of the National Curriculum in England: The Consultation Materials (May-July 1999) pertaining to the revised curriculum for September 2000)

One interpretation of what it means to “do” science is implicit in the final sentence above: that is, that science is very much a social process - even when a scientist is working alone. Whenever we do science, we use ways of talking, reasoning, observing, analysing, hypothesising, predicting and writing that we have learned from our community. We employ these skills to construct findings and arguments that become part of science only when they become shared in that community. Teaching science is teaching pupils how to do science. Teaching, learning and doing science are social processes that are carried out in communities, whether this be a classroom or part of a wider community. These communities are made by communication, and we communicate primarily through language.

KS3 science and literacy

The importance of developing communication skills is evident in the Key Stage 3 National Strategy Literacy in Science strand which, among other factors, emphasizes the need for planned opportunities for discussion work and extending writing activities for purposes such as pupils’ own understanding and interpretation of information.

Ultimately, doing science is always guided and informed by thinking science and talking science to ourselves, and with others. In short, although learning can take place through individual perceptions, conceptualisations, attitudes and actions, it is through the expression of these, usually within a setting where other people are asked to comment, note or share some of the meanings involved, that they become validated. It is this very need to include EAL learners as part of our scientific ‘linguistic community’ that informs many of the materials and approaches presented in this booklet.



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